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FIG. 1

100

<?xml version="1.0" ?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<!-- *****
<!-- The root element defines a person.
<!-- *****

110 — <xsd:element name="person" type="personType"/>

<xsd:complexType name="personType" mixed="false">

<xsd:all>

<xsd:element name="name" type="xsd:string" minOccurs="1" maxOccurs="1" /> 130

<xsd:element name="address" type="xsd:string" minOccurs="1" maxOccurs="1" /> 140

</xsd:all>

<xsd:attribute name="height" type="xsd:integer" use="optional" /> 150

<xsd:attribute name="weight" type="xsd:integer" use="optional" /> 160

</xsd:complexType>

</xsd:schema>

FIG. 2

200

<?xml version="1.0" encoding="UTF-8"?>

<person

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.myCompany.com/base.xsd" 220

height=72 weight=190>

<name>John</name>

<address>123 Main Street</address>

</person>

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FIG. 3A

300

<?xml version="1.0"?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<!-- *****
<!-- This extension adds gender to a person.
<!-- *****

310 <xsd:redefine schemaLocation="base.xsd">

311

<xsd:complexType name="personType">

<xsd:complexContent>

<xsd:extension base="personType">

321

<xsd:attribute name="gender" type="xsd:string" use="optional" />

323

</xsd:extension>

</xsd:complexContent>

</xsd:complexType>

</xsd:redefine>

</xsd:schema>

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FIG. 3B

330

<?xml version="1.0" ?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<!-- *****
<!-- This extension adds age to a person.
<!-- *****

340 <xsd:redefine schemaLocation="base.xsd">

350 {
 <xsd:complexType name="personType">
 <xsd:complexContent>
 <xsd:extension base="personType">
 <xsd:attribute name="age" type="xsd:integer" use="optional" />
 <xsd:extension>
 <xsd:complexContent>
 <xsd:complexType>
 <xsd:redefine>
 </xsd:schema>
 }

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FIG. 3C

360

<?xml version="1.0" ?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<!-- *****
<!-- This extension adds marital status to a person.
<!-- *****

370 <xsd:redefine schemaLocation="base.xsd">

380 {
 <xsd:complexType name="personType">
 <xsd:complexContent>
 <xsd:extension base="personType">
 <xsd:attribute name="maritalStatus" type="xsd:string" use="optional" />
 <xsd:extension>
 <xsd:complexContent>
 <xsd:complexType>
 <xsd:redefine>
 </xsd:schema>
 }

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FIG. 4A

400

```
<?xml version="1.0" encoding="UTF-8"?>
<person
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="//www.myCompany.com/ext1.xsd"
  height="72" weight="190" gender="M">
  <name>John</name>
  <address>123 Main Street</address>
</person>
```

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FIG. 4B

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```
<?xml version="1.0" encoding="UTF-8"?>
<person
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="//www.myCompany.com/ext2.xsd"
  height="72" weight="190" age="35">
  <name>John</name>
  <address>123 Main Street</address>
</person>
```

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FIG. 4C

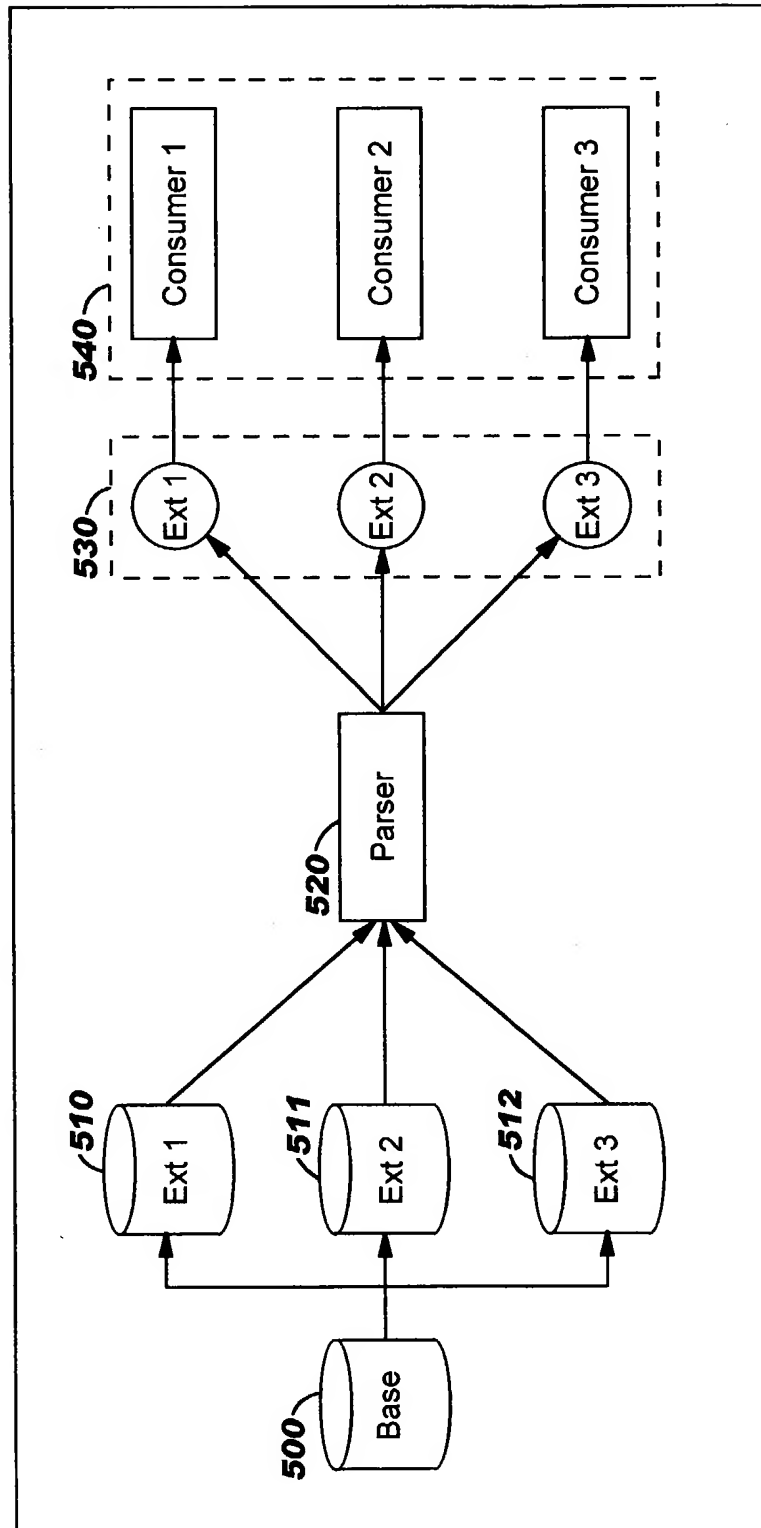
460

```
<?xml version="1.0" encoding="UTF-8"?>
<person
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="//www.myCompany.com/ext3.xsd"
  height="72" weight="190" maritalStatus="Single">
  <name>John</name>
  <address>123 Main Street</address>
</person>
```

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FIG. 5
Prior Art



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FIG. 6

600

```
<?xml version="1.0" ?>

<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <!-- ***** ^
  <!-- The root element defines a person. ^
  <!-- ***** ^

  <xsd:element name="person" type="person/Type"/>

  <xsd:complexType name="personType" mixed="false">
    <xsd:all>
      <xsd:element name="name" type="xsd:string" minOccurs="1" maxOccurs="1" />
      <xsd:element name="address" type="xsd:string" minOccurs="1" maxOccurs="1" />
    </xsd:all>
    <xsd:attribute name="height" type="xsd:integer" use="optional" />
    <xsd:attribute name="weight" type="xsd:integer" use="optional" />
    <xsd:attribute name="gender" type="xsd:string" use="optional" />
    <xsd:attribute name="age" type="xsd:integer" use="optional" />
    <xsd:attribute name="maritalStatus" type="xsd:string" use="optional" />
  </xsd:complexType>
</xsd:schema>
```

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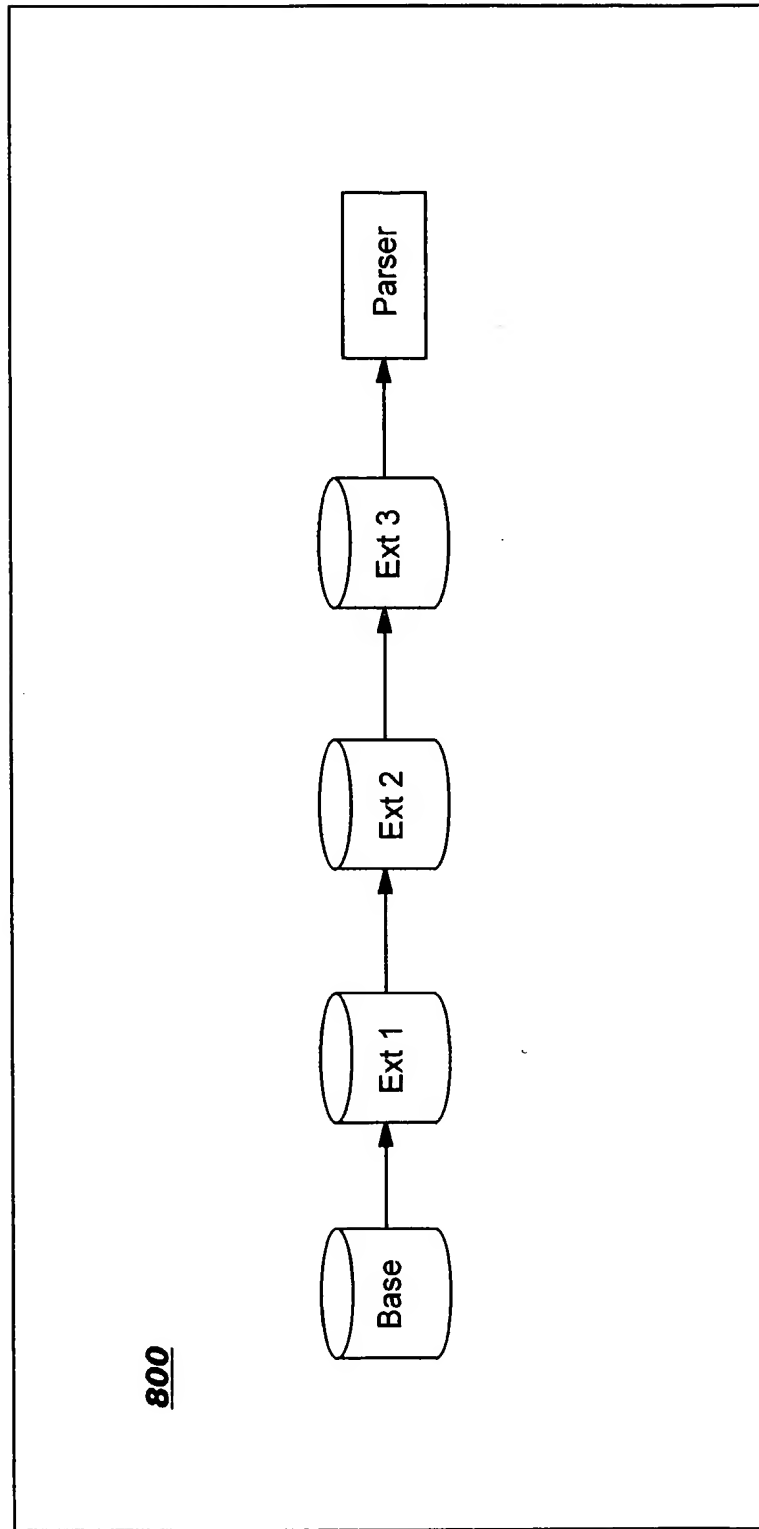
FIG. 7

700

```
<?xml version="1.0" encoding="UTF-8"?>
<person
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="//www.myCompany.com/ext3.xsd"
  height="72" weight="190" gender="M" age="35" maritalStatus="Single">
  <name>John</name>
  <address>123 Main Street</address>
</person>
```


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FIG. 8



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FIG. 9

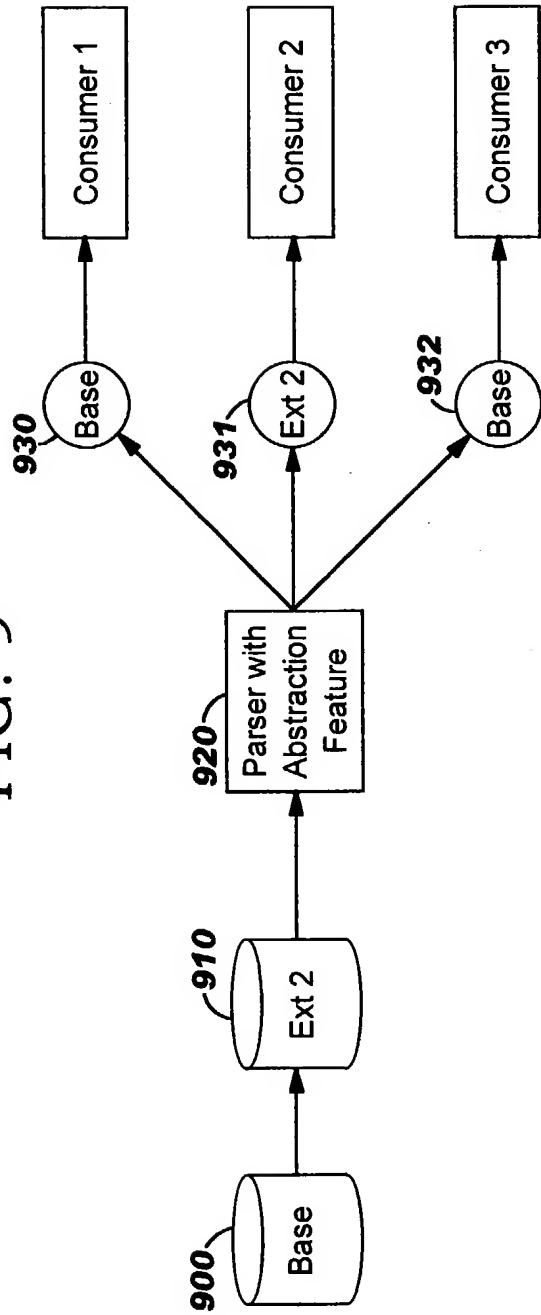
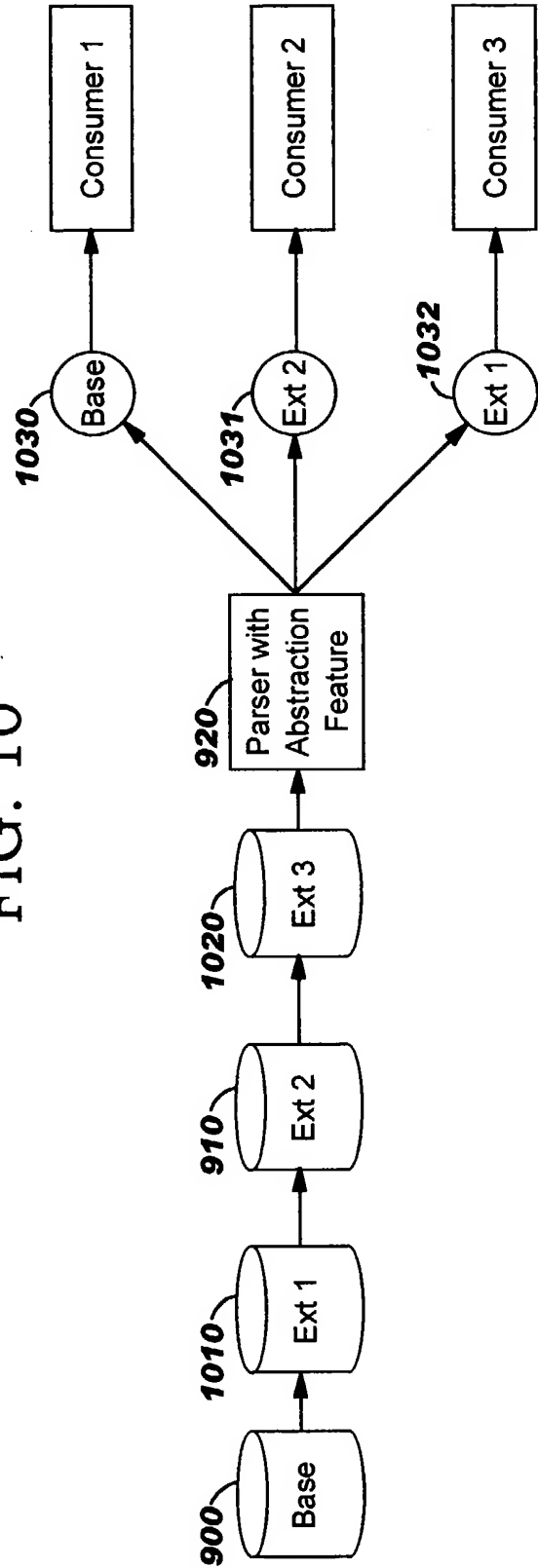


FIG. 10



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FIG. 11

1100

```
1110 { SAXParser parser = new SAXParser();  
      parser.setContentHandler(new ContentHandler());  
      parser.setErrorHandler(errorHandler);  
  
      try  
      {  
          1120 parser.setFeature("http://apache.org/xml/features/validation/");  
          1130 parser.setFeature("http://www.myCompany.com/xml/features/abstraction", "xmlns:base");  
      }  
      catch (Exception e)  
      {  
          // if feature isn't recognized, print a message  
          System.out.println("The Feature is unknown");  
      }  
  
      parser.parse(...);  
  
1140
```

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FIG. 12

